

#### ABSTRACT OF THE DISCLOSURE

In a roller chain transmission, the diameter  $D$  of the rollers, the outer diameter  $d$  of the pins and height  $H$  of the inner plates satisfy the relationships  $0.72P \leq D \leq 0.79P$ ,  $0.40P \leq d \leq 0.44P$ , and  $0.96P \leq H$ , with respect to the chain pitch  $P$ . The sprocket teeth are asymmetric in that the chain entering side and the chain leaving side differ, and the radius  $R_1$  of an arc of the tooth gap bottom, the radius  $R_2$  of the chain entering side tooth flank and the radius  $R_3$  of the chain entering side tooth head portion satisfy the relationships  $0.505D \leq R_1 \leq 0.505D + 0.069^3\sqrt{D}$ ,  $P - (0.505D + 0.069^3\sqrt{D}) \leq R_2 \leq P - 0.505^3\sqrt{D}$ , and  $0.08 \leq R_3 \leq 0.13P$ . The transmission chain exhibits improved endurance and quietness, smooth operation, and resistance to elongation due to wear.